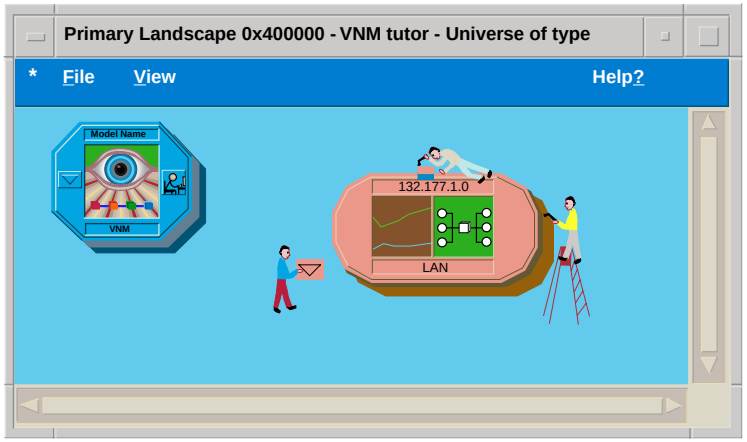

GETTING STARTED WITH LEVEL 1 TOOLS®

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Welcome to Getting Started with Level I Tools

This guide was created for the administrator who, after becoming familiar with SPECTRUM, has decided to further customize SPECTRUM by adding model types to support devices that are not supported by the standard SPECTRUM product. A VAR (Value Added Reseller) who is learning about SPECTRUM will also find the ***Getting Started with Level I Tools*** guide helpful when customizing the features used with SPECTRUM.

The purpose of this guide is not only to tell you what to do to complete the sample task (importing a non-Cabletron MIB and modeling an SNMP Device), but also to explain why you are doing each step and what each step will accomplish for you. The major goal of this guide is covered in **Getting Started - the Task,** where you are taken through steps to customize features that will suit your networking configuration.

The flow chart on Page 2 provides you with a general overview of the toolkits that you can use to fully customize your system. The **Flow Chart of Level I Tools** illustrates how the toolkits are generally used when performing a customization task and in what order the steps are typically performed.

Getting Started - The Task, beginning on Page 3, takes you through the steps in our sample task of importing the MIB information and modeling it in SPECTRUM, as follows:

- Before you create any model types, you should register with Cabletron to obtain a Vendor (or Developer) ID.
- Once your Vendor ID is loaded, access the Model Type Editor (MTE) to create a model type in SPECTRUM to represent your non-Cabletron (third-party) MIB.
- First, create a model type to represent the MIB (and import the MIB information).
- Then create a model type to represent the application, or device. Add the MIB information as base model type for the application model type so that the application model type inherits the MIB attributes.
- Next, select from your list of MIBs an attribute that you can use as the Discovery Attribute when the model makes the initial connection to the device.
- Run the mmbuild script to provide the new model with SG-Support files.
- The model can then be created through SpectroGRAPH by entering an IP Address for your model.
- You should then select attributes that you want to see the values of from the Attribute Browser.
- These selected attributes are saved to a file that is linked to your new model. These attributes can then have tables, graphs, pie charts, etc. created for them by using the ***GIB Editor***.
- Use the IIB Editor to perform any icon customization.

The ***Getting Started with Level I Tools*** guide is used to "get you started." Throughout this guide you will be directed to the toolkit manual that will explain, in greater detail, the steps involved in performing the task.

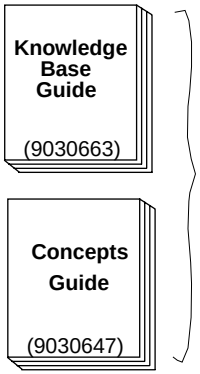
There may be other tasks that you will want to perform and some of them may involve using other Level I Toolkits that allow you to further customize the SPECTRUM model of your network. This guide shows you how to import third-party MIB information and model the device in SPECTRUM. You may want to modify generic information views, or create and modify icons, or you may want to edit the `.csi` image files, or add new alerts, or create a new base icon by creating a new information block. Consult the manuals that cover these topics in detail for information that goes beyond the scope of this guide.

The ***SEI Toolkit*** and ***Modeling with the GenSNMP Toolkit*** guides are part of the Level I Tools but are not needed to complete our task. See the individual guides for more information on each of these toolkits.

The Level II Toolkits are used to develop C++ advanced extensions by integrating new objects and programs into the SPECTRUM knowledge-base. These additions range from customer-written customization of the SPECTRUM user interface at a specific site to a VAR-developed management module that can be sold to multiple customer sites. These tasks are not covered in this guide. See the ***Level II Overview*** for information on the Level II Toolkits that are available.

Flow Chart of Level I Tools

What You Need To Know Before You Begin



Read the ***Concepts Guide*** and the ***Knowledge Base Guide*** to understand the SPECTRUM concepts that are pertinent to understanding the Level I Toolkits.

- What a Derivable Model Type is (for using the ***Model Type Editor***)
- Understand how Relations and Rules work in a networking environment
- Understand Inductive Modeling Technology
- Understand SPECTRUM terminology
- Understand SPECTRUM architecture.

Load Vendor ID

Load the Vendor ID information. Vendor information is loaded only once (but must be reloaded with each system update). Call Spectrum Support for the Vendor ID information.

MTE - To create Model Type

The Model Type Editor is the first tool you use when you begin creating a model type. The Model Type Editor is used to :

- create new model types
- modify SPECTRUM model types
- add attributes and relations
- import a MIB text file
- import and export model types.

Modeling with Generic SNMP

To create model types from generic derivation points. This guide will help a developer use and understand hub and port modeling support in Generic SNMP.

Import MIBS

To group and add attributes to the SpectroSERVER database.

Run mmbuild

Provides a new model type with the required SG-Support files it needs to be represented through SpectroGRAPH.

GIB Editor

To create and customize generic views and manage information presented to SPECTRUM users on your network. GIB views are available for organizing and displaying attribute information and statistics for a modeled entity.

IIB Editor

To edit Iib files for icons representing existing model types or new model types that you have added to your database.

Getting Started - The Task

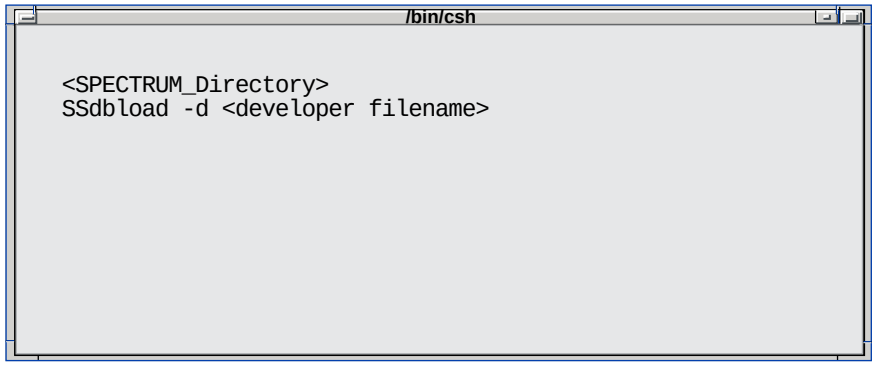
1. Load Vendor ID

To begin the task of importing a third party MIB and modeling it in SPECTRUM, you must load the Vendor ID. This task must be accomplished only once (but must be repeated whenever your database is updated). Each vendor registered with Cabletron receives a unique Vendor Identifier (ID) that prevents the model types and attributes the vendor (or developer) creates from being edited by other developers. If you do not register with Cabletron Systems, Inc. as a SPECTRUM Vendor, the default ID is applied (Default Vendor ID prefix is DF).

Developers using the Default Vendor ID can edit and export only those model types and attributes that were created with the Default Vendor ID. Other developers who use Default Vendor ID can view, create, destroy, or modify model types and attributes created with the Default Vendor ID. Registered vendors can view, create, destroy, and modify their own model types and attributes. No one else has access to them, except to view.

To add vendor information to a database, type in the command line for initializing the database as follows, replacing 'developer filename' with the filename for your vendor file.

SSdbload -d <developer filename>



Before you can use the export function, you must have a Vendor ID loaded..

2. Access the Model Type Editor from the Control Panel

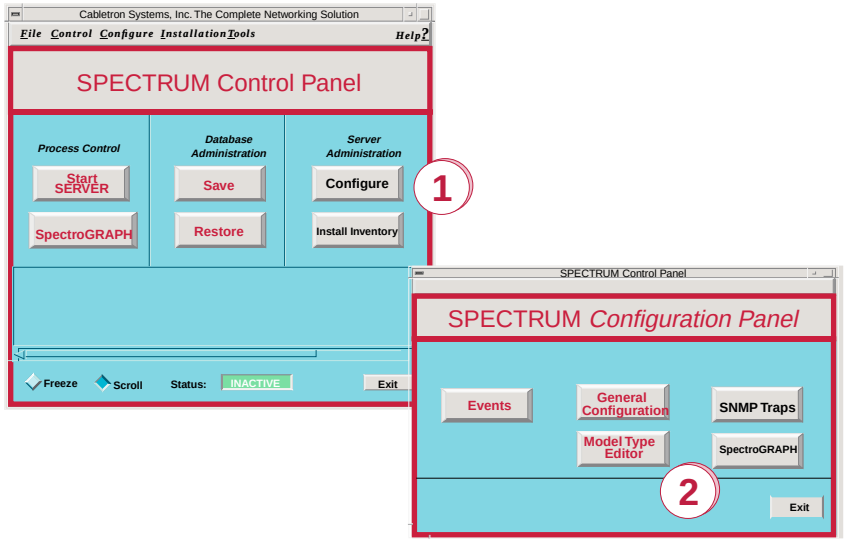
The next step after loading your Vendor ID is to create a model in SPECTRUM to represent your non-Cabletron MIB. To do this, you need to create a model using the Model Type Editor and then import the MIB information into that model type. To access the Model Type Editor (MTE), type **`spectrum`** at the command line. This will open the Control Panel where you can then access the MTE from the **Configure** menu.

Be sure SpectroSERVER is not running. If it is running, click ***Stop Server*** *under Process Control in the Control Panel.*

From the Control Panel menu,

1) Click **Configure** on the Control Panel under Server Administration.

2) Click **Model Type Editor** on the SPECTRUM Configuration Panel.



3. Create a Model Type for the MIB

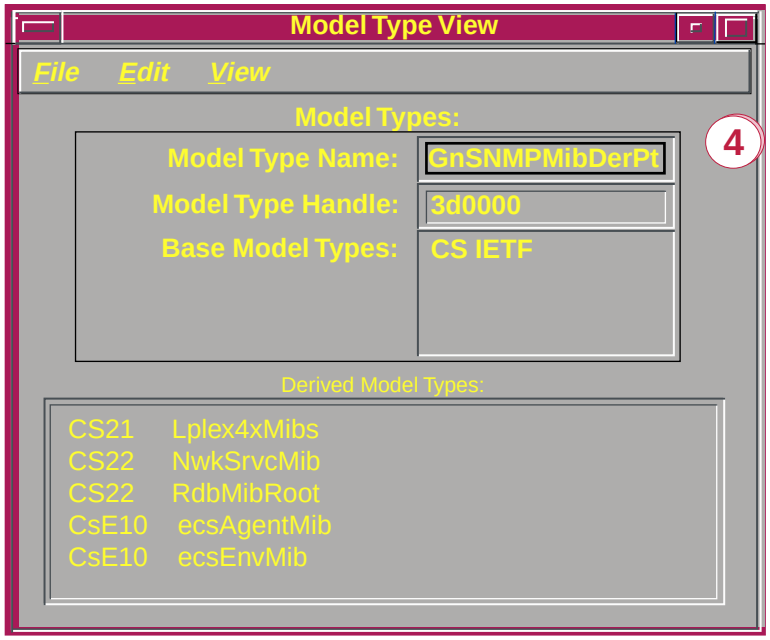
Once the MTE is running, you can create a model type for the MIB by following the procedure below. Use GnSNMPMIBDerPt (Generic SNMP MIB Derivation Point) as your derivation point to give the MIB portion of your model type additional generic SNMP intelligence. Select a model type from the Model Type View that has attributes you will need for your new model type (for example, Manufacturer, MMDeveloper, etc.). With that model selected as the base model in the Model Type Name field, proceed as follows.

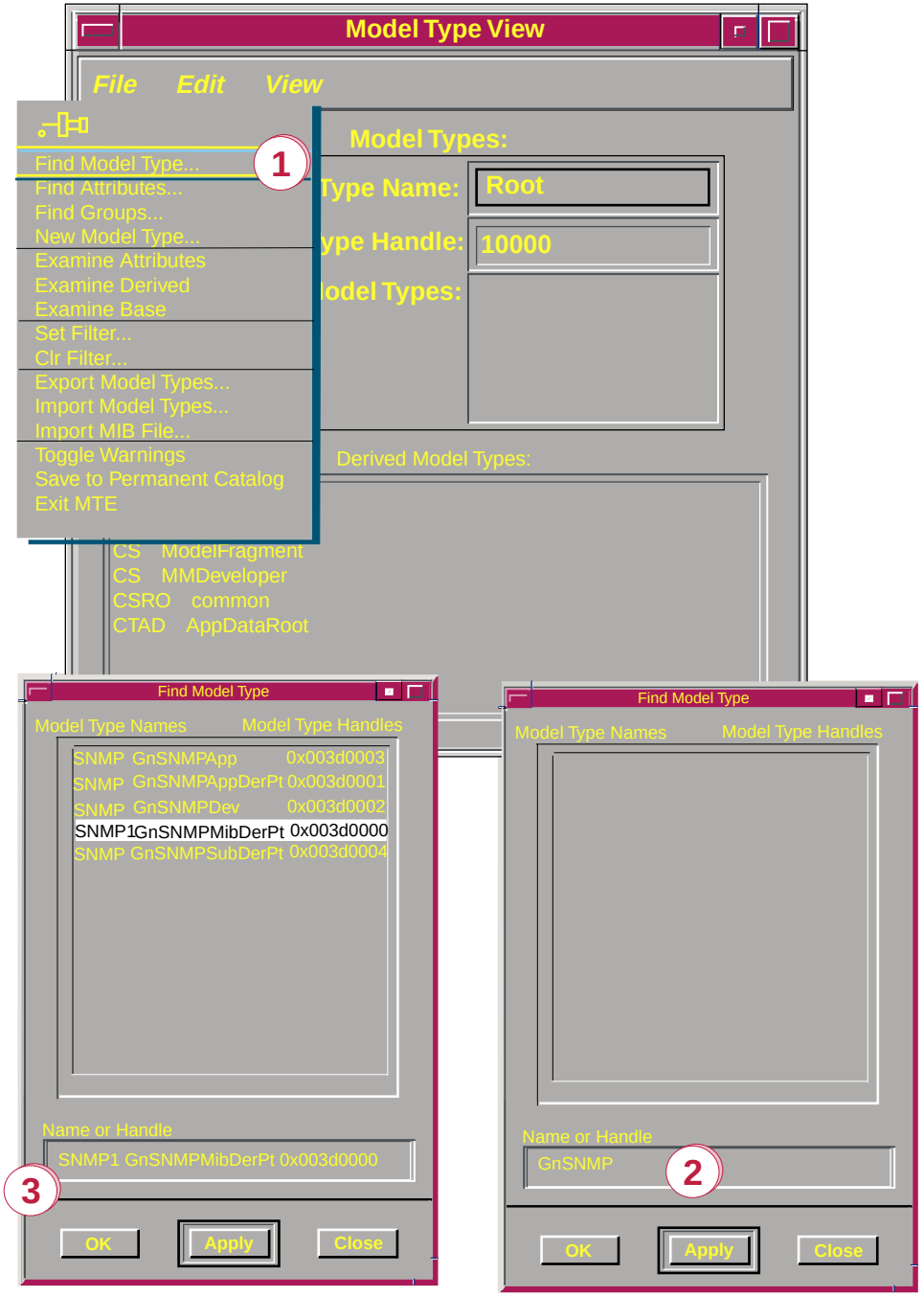
1) Select **Find Model Type** from the File menu.

2) Enter **GnSNMP** in the filter and click **Apply**.

3) Click **GnSNMPMibDerPt** from the list of Model Type Names and click **OK**.

4) The selected Model Type (GnSNMPMibDerPt) appears under Model Type Name in the Model Type View window.





4. Import the MIB File

Before you import the MIB, you must create a new model type based on the derivation point you just selected in Step 3. Follow the steps below to create a new model type and to import the MIB.

1) In the Model Type View, select **New Model Type** from the File menu.

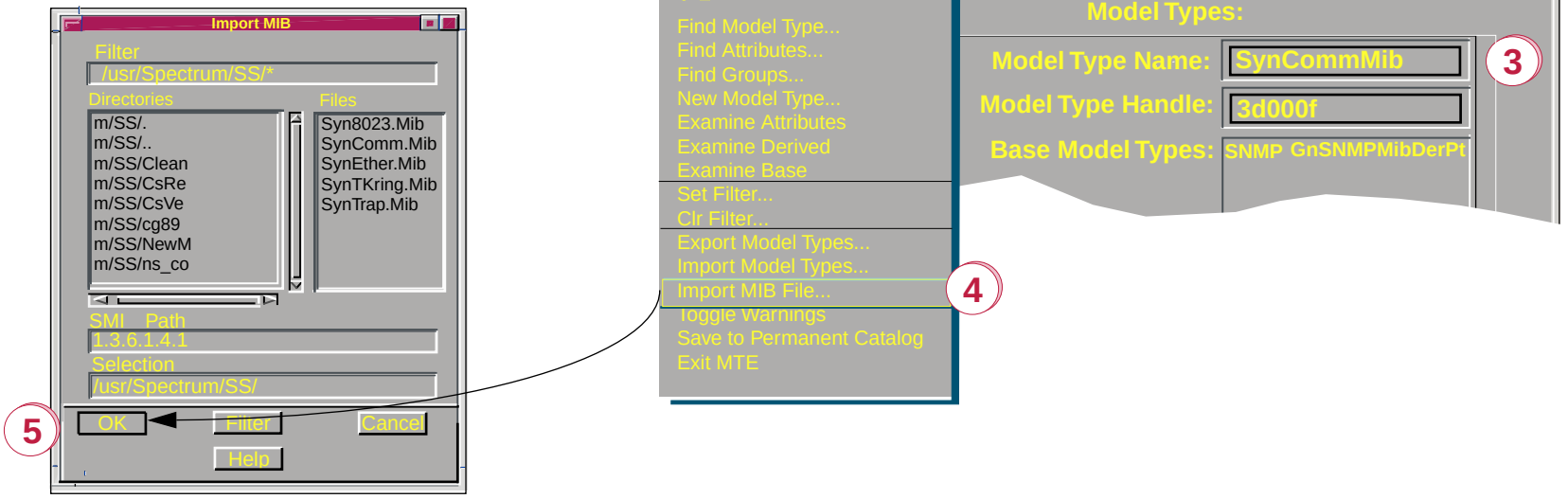
2) In the New Model Type dialog box, click in the Name field and enter a name for your New Model Type (you might want to add 'MIB' to the end of the file name so you will know this is your MIB model type.) Click **OK**.

3) The New Model Type name will appear in the Model Type Name field of the Model Type View window. Note that its Base Model Type is GnSNMPMibDerPt.

4) Select **Import MIB File** from the File menu. When the Import MIB dialog box appears, enter the complete path and file name for the MIB (or select the desired MIB from the Directories and Files scroll lists.)

5) Select **OK** to import the MIB.

Importing the MIB adds attributes to the database to be used with your model type. For more information, see the ***Model Type Editor***.



5A. Create a Model Type for the Device

After you import the MIB, you need to add support for the MIB by creating an application model type for the device. This application model type will be discovered by GnSNMPDev (Generic SNMP Device) and will communicate with the imported MIB. It will also be derived from the GnSNMPAppDerPt (Generic SNMP Application Derivation Point) model type. The model type behaves as a major application but contains no knowledge of the imported MIB.

A second model type must be created that also knows about your imported MIB. This second model type will be derived from the GnSNMPAppDerPt model type. Create a model type for the device by following the procedures in **Step 5A**. After selecting a model type and entering the GenSNMPAppDerPt and applying additional device information, proceed to **Step 5B**. In this step you will create a new model type and add the MIB model type you created as one of its base model types, to provide the model type with access to your imported MIB. Next, locate an attribute to be used as your discovery attribute that has a mandatory status and syntax that equals integer. It is also preferable that the attribute is non-list (meaning, one that is not a table attribute.) Change the value by following the procedures in **Step 5C**. With the selected base model in the Model Type Name field, proceed as follows:

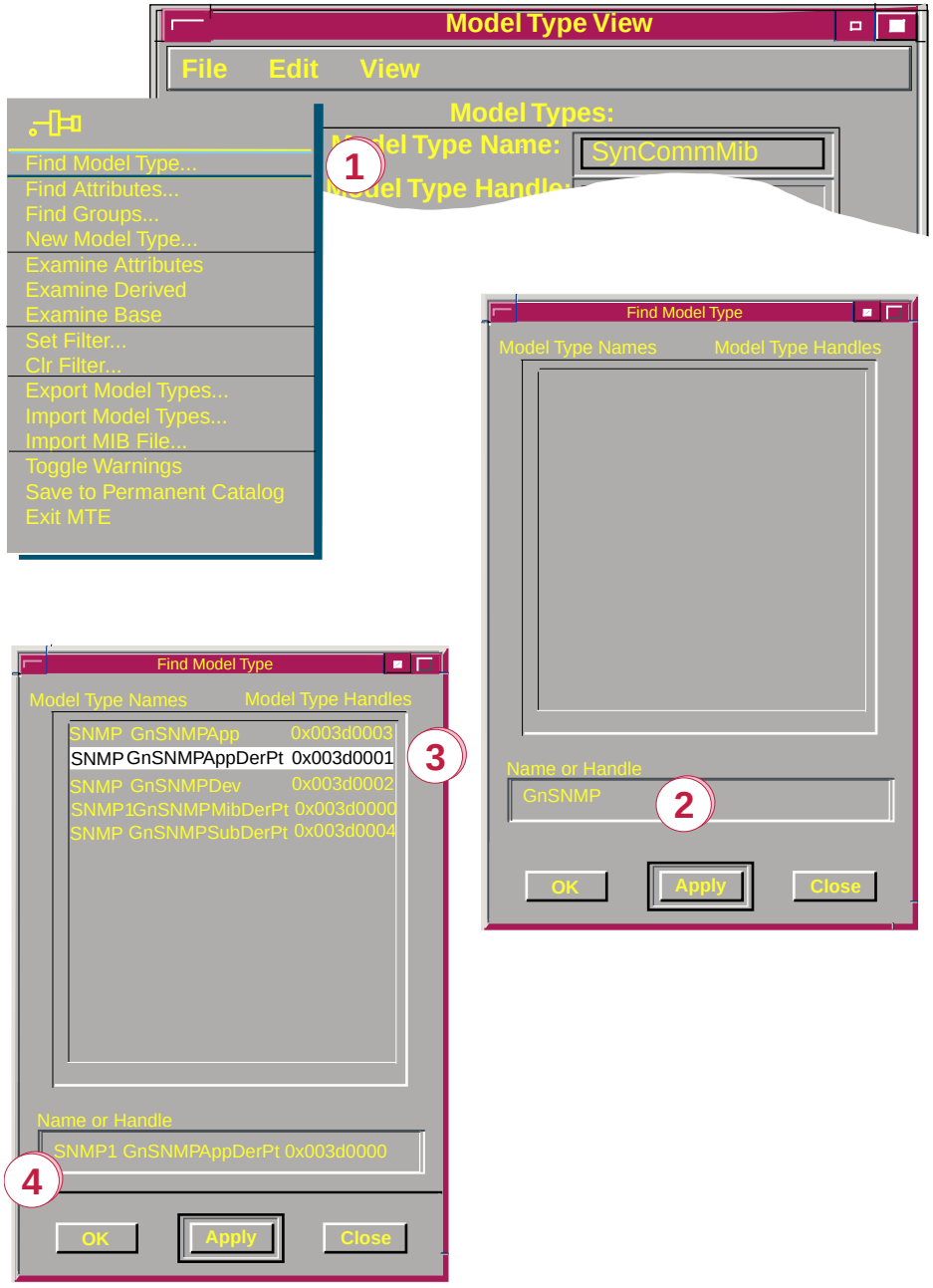
1) Select **Find Model Type** from the File menu.

2) Enter **GnSNMP** in the filter and click **Apply.**

3) Click on **GnSNMPAppDerPt** from the list of Model Type Names.

4) Click **OK**.

The selected Model Type (GnSNMPAppDerPt) will appear under Model Type Name in the Model Type View window (see Step 5B).



5B. Create a Model Type for the Device (continued)

1) Select **New Model Type** from the File menu.

2) Enter name of new application model type (you might want to add 'App' to the end of the file name so you will know this is your Application model type) in the New Model Type dialog box.

3) Click **OK**.

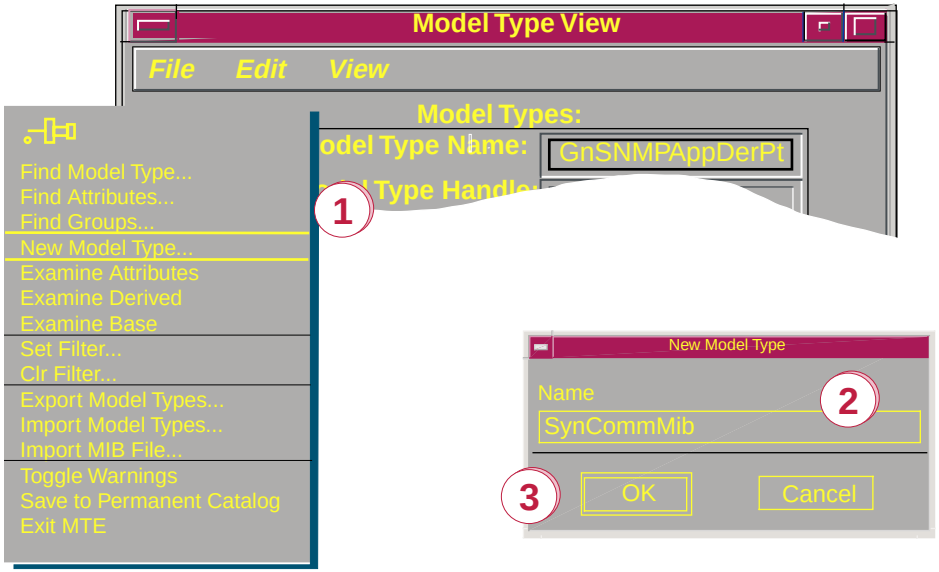
Add MIB model type as base model type to application model type:

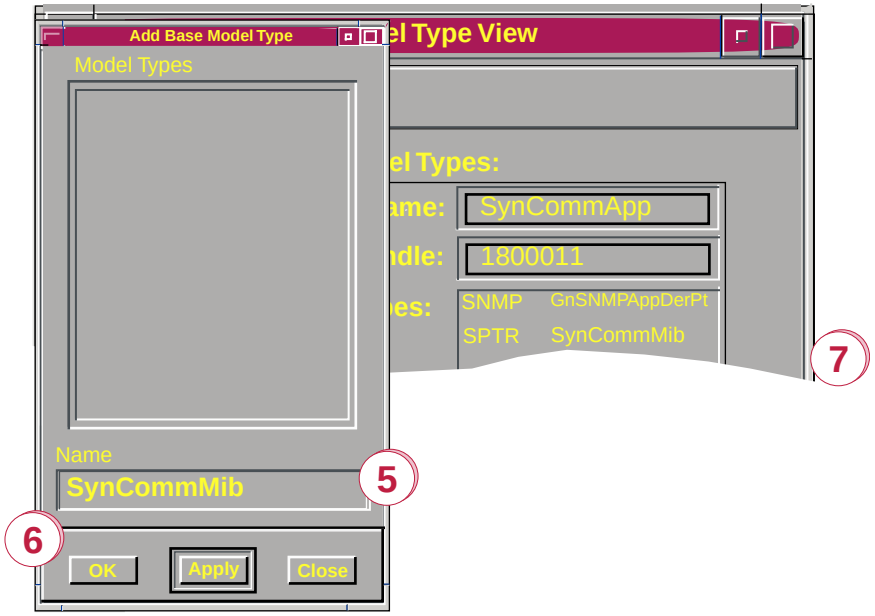
4) Select **Add Base Model Type** from the Edit menu.

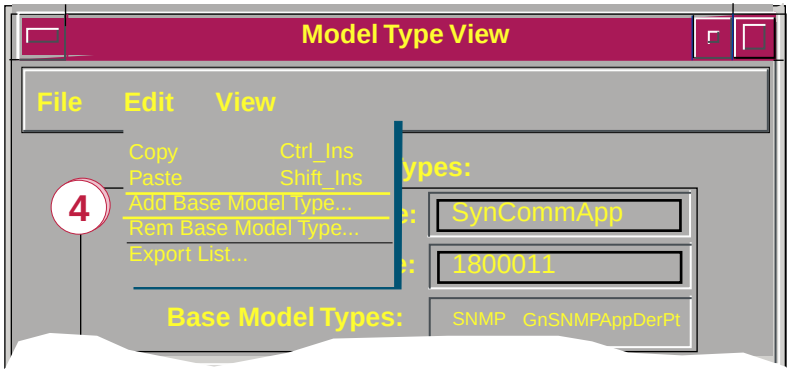
5) Enter the **MIB Model Type** name you created and then click **Apply**.

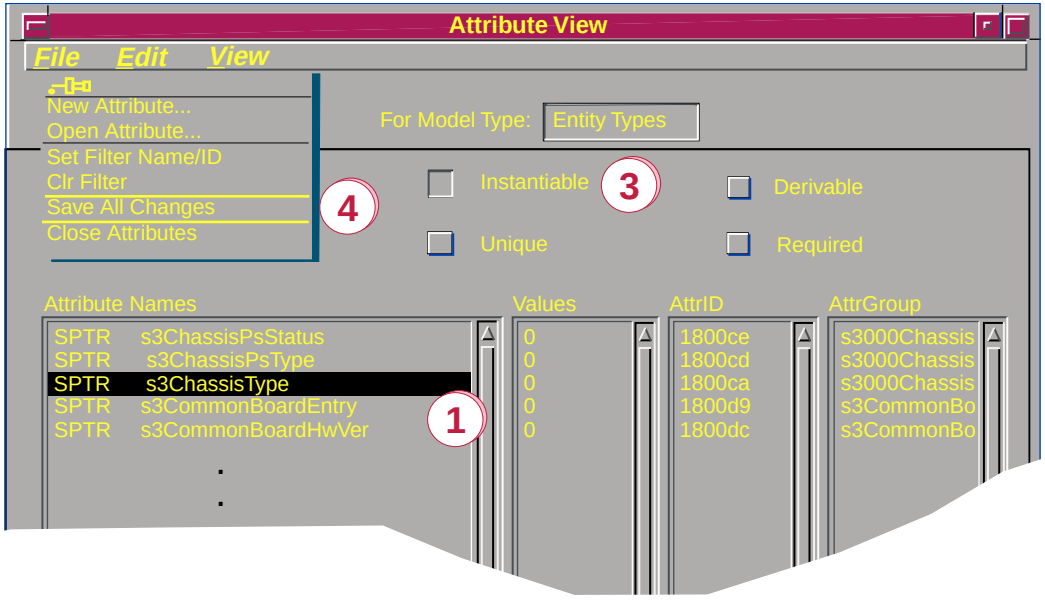
6) Select the MIB Model Type entry and then click **OK**.

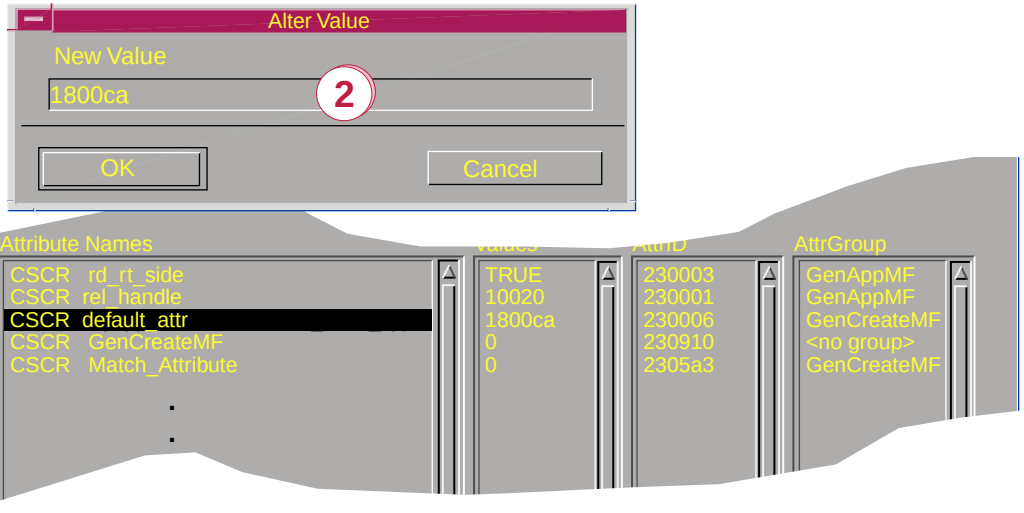
7) The MIB Model Type will appear as a second base model type.











5C. Create a Model Type for the Device (continued)

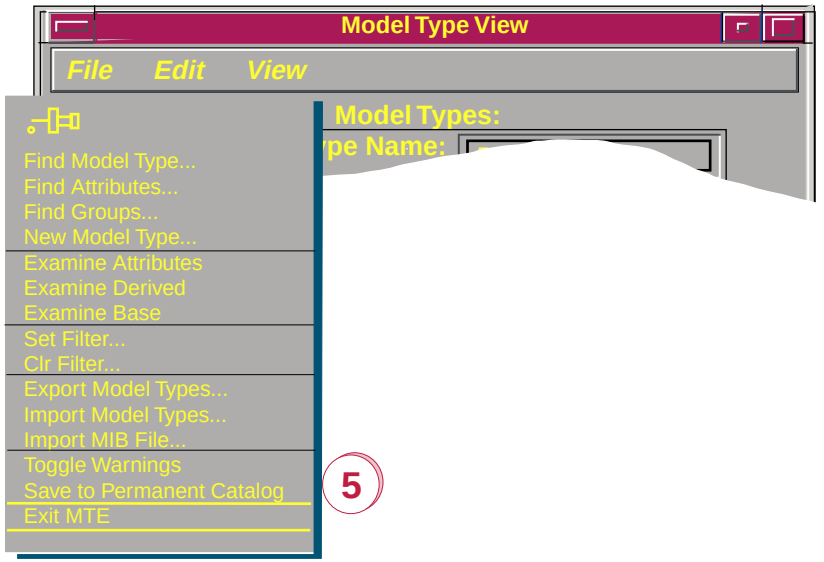
1) From your MIB, choose an attribute to represent the Discovery Attribute. The Discovery Attribute is the first attribute that is located when an initial connection is made, when the model queries the device. The attribute you choose as your Discovery Attribute should have the following criteria: the attribute should be mandatory, is an integer, and is preferably non-list (not a table attribute.)

2) Make a note of the attribute ID, then go to the **default_attr** and add this to the value field of the new app model type. (The Alter Value dialog box automatically opens when you double-click the **Values** field for the **default_attr**.)

3) Be sure to set the Instantiable flag by clicking the button **ON**.

4) Select **Save All Changes** from the **File** menu.

5) Select **Exit MTE** from the Model Type View screen to exit the MTE.



6. Run mmbuild to Create SG-Support Files

The **mmbuild** script provides a new model type with the SG-Support files it requires to be represented through SpectroGRAPH. This script should be run for each model type (for example, run the **mmbuild** script on the SynCommMib model type and run the **mmbuild** script on the SynCommApp model type).

Be sure to exit SpectroGRAPH and shut down the SpectroSERVER.

Navigate to the SG-Support directory and type:

```
../SG-Tools/mmbuild
```

The **mmbuild** script prompts for the following information (highlighted in bold):

1. Name of the new Model Type:

2. Name of the base Model Type:
The base model type name is the key *mmbuild* uses to determine which SG-Support files should be used.

3. Management Module Developer Name:
You can use DF as the default if you have not been assigned a developer name (Vendor ID) from Cabletron. If you do not register with Cabletron and choose to use DF, model types should not be exported to other machines where SPECTRUM is running because the model type handles clash with the attribute ID. Therefore, you are advised to call Cabletron support for a vendor ID and load it into the database before you start any development.

4. Create an index file (y/n): ('n' for no is the default)
The information you entered for the above questions is displayed along with a message that tells you where you can find the index file that was created. An index file contains a list of components and instructions on how to distribute those components.

You are then asked the following question,

5. Are these values correct? (y/n) ('n' is the default response)
If '**n**' is selected, you will return to the initial screen where you can enter the correct value.

If you select '**y**', the following will display on your screen:

```
You are about to modify files in these SpectroGRAPH
Support directories:

/usr/spectrum/SG-Support/CsPib
/usr/spectrum/SG-Support/CsGib/hub(model type)

This is your last chance to exit this script without
modifying any of your existing files.
```

6. Would you like to exit this script now? [y/n]:
If you select '**n**', you will be asked the following question.

7. Would you like to begin modifying files? [y/n]:
If you select '**y**', the following displays:

```
Adding pid entries
Model type 'name' has been added to the Support files
An index file was created in SG-Tools directory as
'hub.i'.
```
(example index file name)

8. Display a list of changed files on screen? [y/n]:
If you select '**y**', the files display,

```
CsPib/
   CsBanner.pib:GnSNMPDev/GnSNMPApp.DEV,hub
   CsDefault.pib:HubSyn3FDDI/Large.Bas,hub
   .
   .
   CsGib/hub/
      CsCreate.100
      CsStandard.30
```

9. Send a list of changed files to a file? [y/n]:
Enter the name of the file:
When you have entered the name of the file, the program exits.

The **mmbuild** script has now identified the model type in the appropriate SG-Support files.

Once you have run **mmbuild**, you can then add enhancements to the new model type's generic views or icons using the Attribute Browser, the GIB Editor, and the IIB Editor. These tools are described on the following pages.

7. Create a Model through SpectroGRAPH

In SPECTRUM, create a model using your newly created model type by following the steps below:

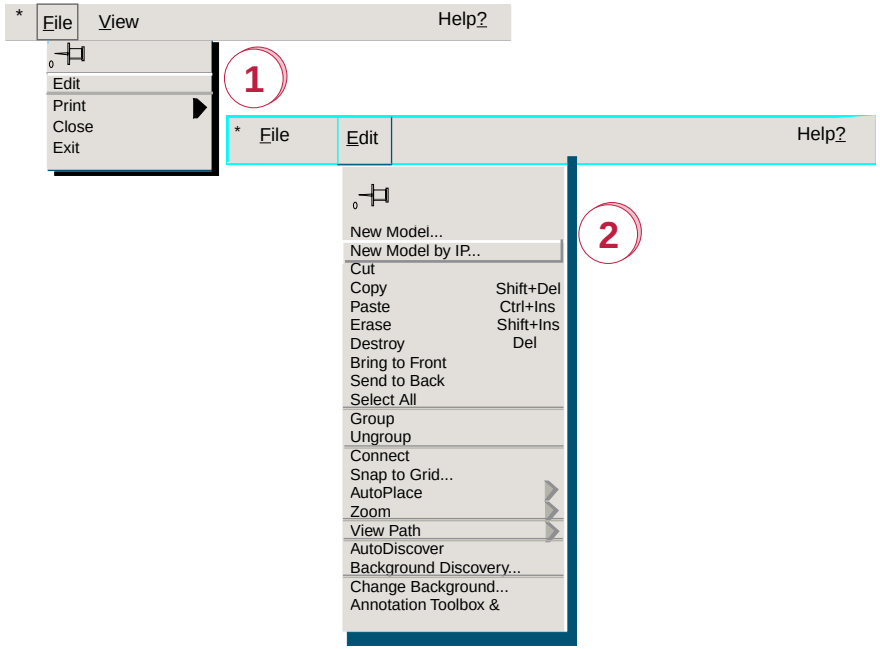
1) Select **Edit** from the File menu.

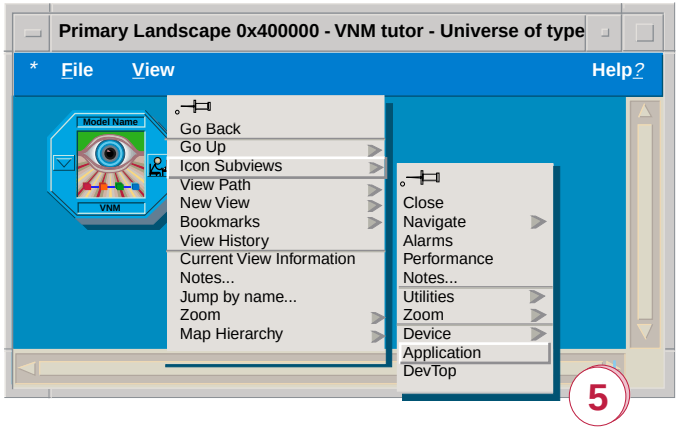
2) Select **New Model by IP** from the Edit menu.

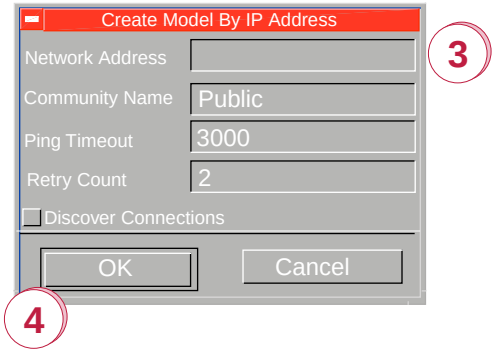
3) In the Create Model by IP Address dialog box, enter the IP Address and other information for your new model.

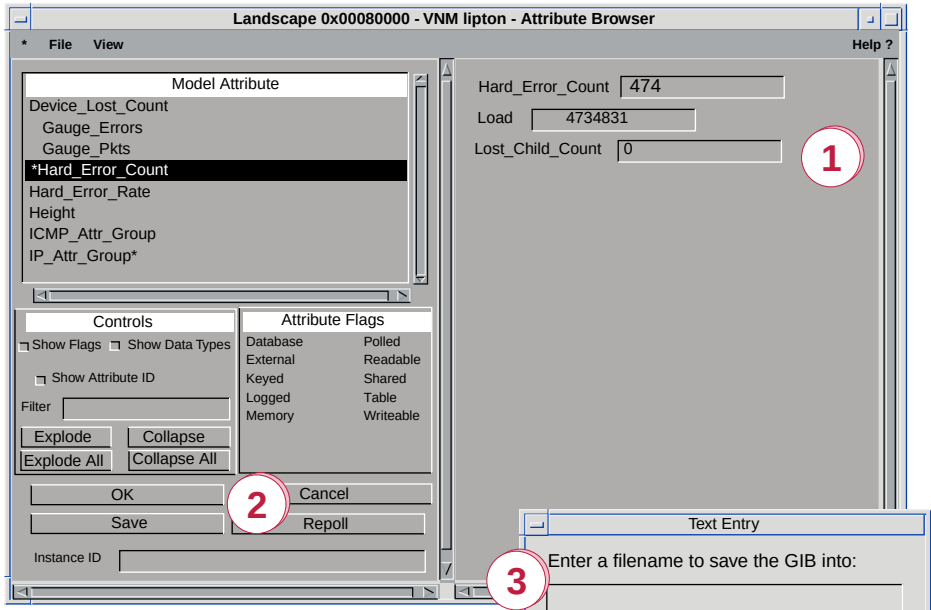
4) Click **OK** to save and close.

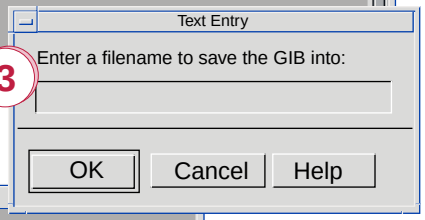
5) From the **Icon Subviews** menu, select **Application View** to see the new model for your device.

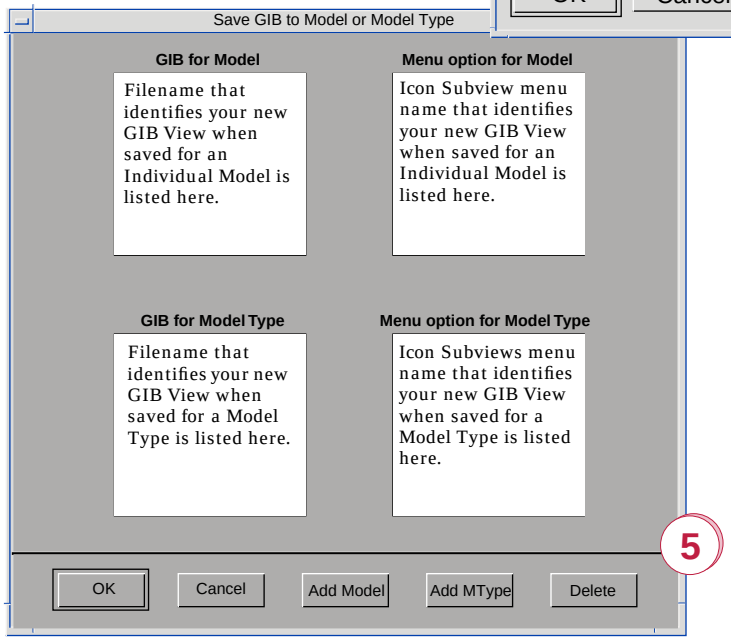


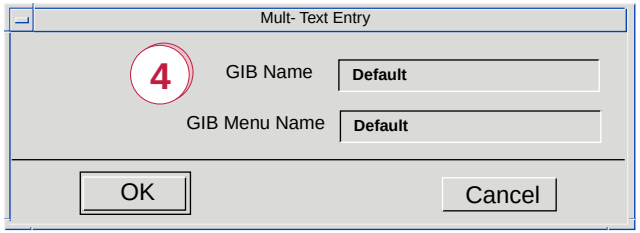









Save GIB to Model or Model Type
GIB for Model
Filename that identifies your new GIB View when saved for an Individual Model is listed here.
Menu option for Model
Icon Subview menu name that identifies your new GIB View when saved for an Individual Model is listed here.
GIB for Model Type
Filename that identifies your new GIB View when saved for a Model Type is listed here.
Menu option for Model Type
Icon Subviews menu name that identifies your new GIB View when saved for a Model Type is listed here.
5
OK
Cancel
Add Model
Add MType
Delete



8. Select Values from the Attribute Browser

Select model attributes from the Attribute Browser that you will use to create a GIB view for your new model. Choose attributes whose status you wish to see displayed in SpectroGRAPH for the model you created. When these attributes are saved, they are saved for your specific model type.

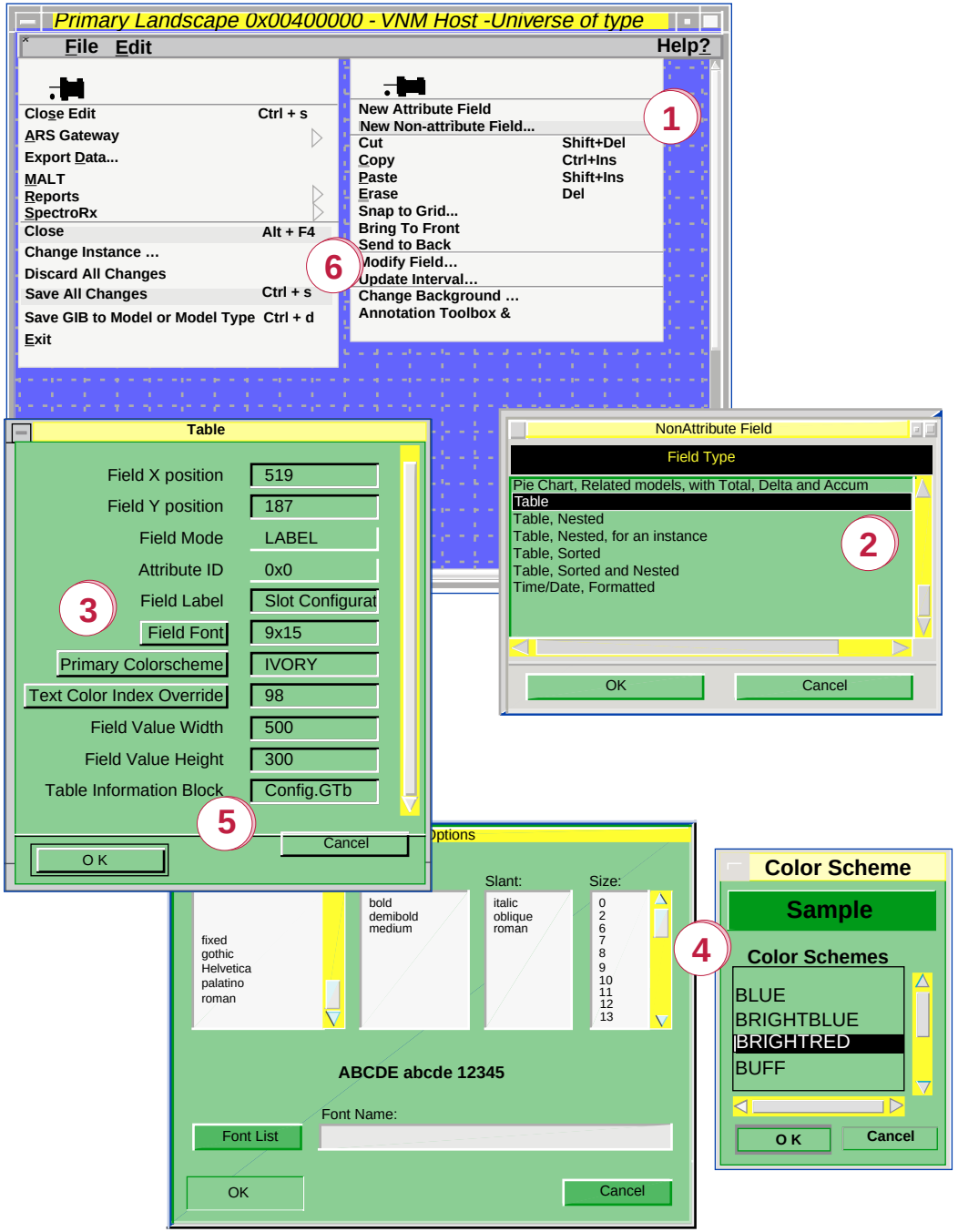
1) Open the Attribute Browser view and select the attributes you want from the Model Attribute column. The attributes appear on the right in the Attribute Browser window as they are selected.

2) Click **Save**.

3) Save a view with the selected attributes in the Text Entry dialog box that appears when the Save option is chosen.

4) After you click **OK**, a Multi-Text Entry dialog box opens. Enter into the GIB menu name field a menu name for the Attribute Browser view being saved as a GIB view and click **OK**.

5) The Save GIB to Model or Model Type dialog box appears and is used to link the custom Attribute Browser view to a particular model (or model type) when you select **Add Model** (Add MType). Once linked, the view's menu name appears in the model's Icon Subviews menu the next time the view is opened.



9. Customize Generic Views with the GIB Editor

Once the model is created through SpectroGRAPH and you have selected the attribute information from the Attribute Browser view for the GIB Editor, open the GIB Editor (from the Configuration view.) Customize your new view by following the steps below:

1) Select Edit from the File menu and then choose **New Non-attribute Field** from the Edit menu.

2) To create a table, select **Table** from the Non-attribute Field dialog box and click **OK**.

3) Enter **Slot Configuration Table** in the **Field Label**'s text box.

4) Define font characteristics for the fields by clicking the **Field Font** button, color by clicking the **Primary Colorscheme** button, and **Text Color Index Override** button to change the text color.

5) Enter **Config.GTB** in the Table Information Block to point to the table file to use and then click **OK** to save the table.

6) Exit Edit by selecting **Save All Changes** and **Close Edit** from the File menu and **OK** in the confirmation dialog window.

For more information on customizing generic views, consult the ***GIB Editor*** guide. The tutorial in the ***GIB Editor*** will lead you through the steps to create, a new view based on an existing view, a multi-attribute graph, a button to open a new window, and a pie chart. It will also show you procedures for editing GIB views.

10. Customize Icons with the IIB Editor

Use the IIB Editor to edit icons for the new model that was created using the Model Type Editor.

Start the IIB Editor (SpectroSERVER must be running but your SpectroGRAPH should be shut down) and locate IibEdit in the **`/<Spectrum Directory Path>/SG`** directory. Follow the procedure below:

1) Type `IibEdit` at the system prompt and press return. The **Icon Select** view will open.

2) Scroll through the Model Types list for your MIB model type.

3) Double-click your MIB model type; it will appear in the Selection field.

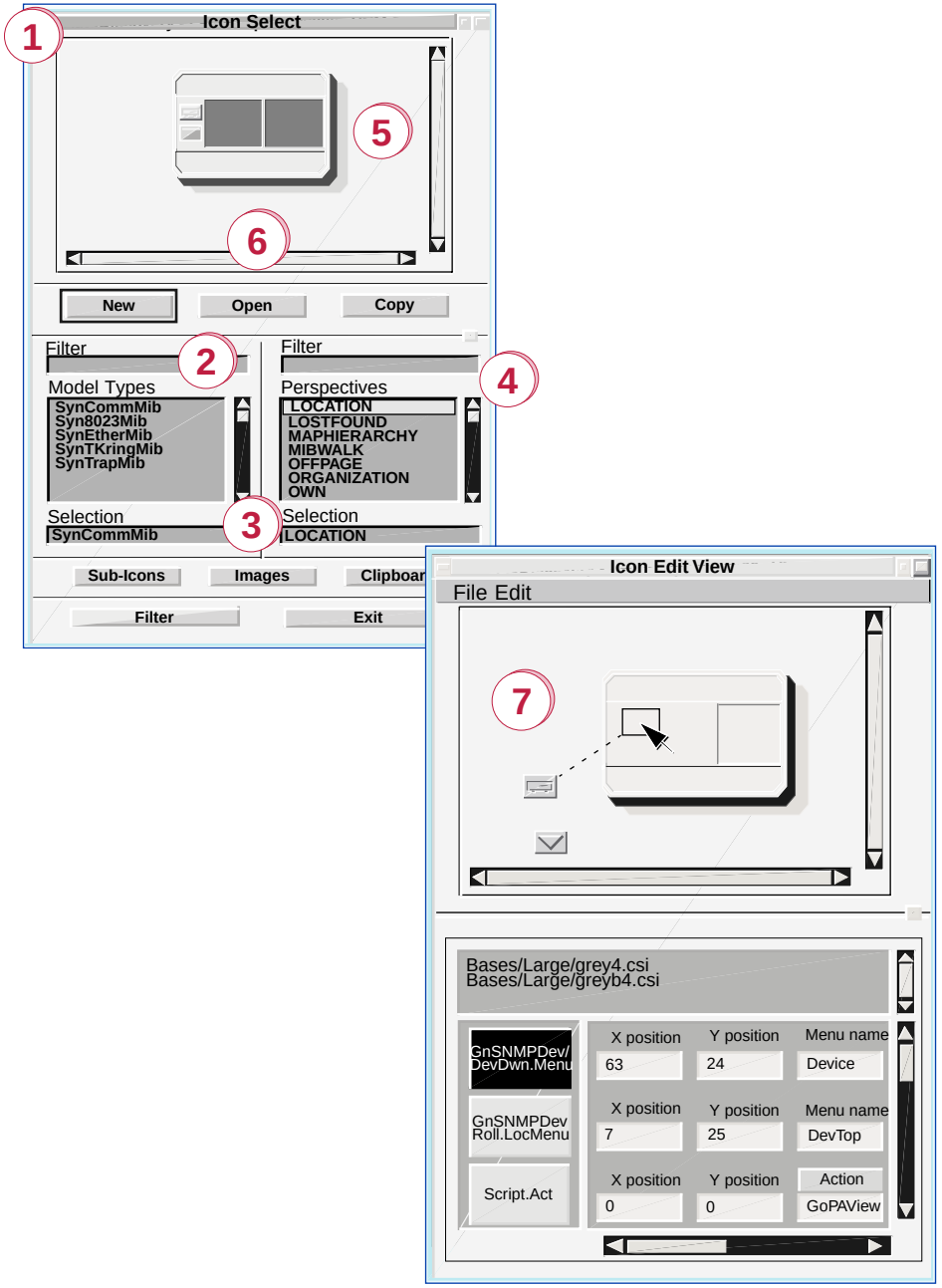
4) Scroll through the Perspectives list to select icon perspectives you wish to edit. The perspectives represent a view in SPECTRUM that this icon will be mapped to.

5) The selection will appear in the selection field and the icon will appear in the Icon Select view panel.

6) Click on the **Open** button to open the **Icon Edit** View.

7) In the Icon Edit View, click on the sub-icons if you wish to change their position on the icon.

Sub-icons can also be added to icons, a sub-icon's action can be changed, and you can add a submenu option to the Icon Subviews menu for that icon. See the ***IIB Editor*** guide for more detailed information on editing icons.



What Next?

You have now imported a non-Cabletron MIB and modeled the device in SPECTRUM. For more information on SPECTRUM and the Level I Tools, see the list below on ***Learning More About SPECTRUM*** and contact Cabletron about registering for a Customization class.

Learning More About SPECTRUM ...

For further reference, SPECTRUM documentation is your best source for current information. The roadmap on the CD-ROM for the Documentation set will provide you with access to the SPECTRUM documents. The ***Software Release Notice*** (SRN) that came with your copy of SPECTRUM lists titles and part numbers for the latest documentation and provides timesaving information on known anomalies.

Four categories of SPECTRUM products are available:

- End User Products -- these are the SPECTRUM Network Management core products, including:
  - SpectroGRAPH, the SPECTRUM User Interface (UI)
  - SpectroSERVER, the network management software
  - Cabletron-developed management modules and applications
- Level I Toolkits -- these provide the capability to add support for additional devices and to enhance or modify aspects of SPECTRUM core without writing any C++ code.
- Level II Toolkits -- these offer programming interfaces for the purpose of developing C++ advanced extensions to SPECTRUM. These toolkits include header files, object libraries, example source code, and complete documentation.
- Applications -- these are products designed to complement SPECTRUM End User Products. This category of products includes applications, such as SpectroWATCH, SpectroPHONE, SPECTRUM Data Gateway, SPECTRUM AR System Gateway, SPECTRUM NetView® Gateway, SPECTRUM Report Generator and SPECTRUM Data Export.

Questions About SPECTRUM Documentation

Send your questions, comments, or suggestions regarding SPECTRUM documentation to the Technical Communications Department directly via the following internet address:

spectrum-techdocs@ctron.com